

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2017

**Subject Code: 2172502**

**Date: 02/11/2017**

**Subject Name: Productivity Improvement Methods**

**Time: 10:30 AM TO 01:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) Differentiate production and productivity in light of economic progress of India. Take an example of ship breaking industries.	<b>03</b>
	(b) Discuss causes of low productivity and techniques to overcome them. Consider example of foundries in the region, with a special focus on labour productivity aspect.	<b>04</b>
	(c) Define method study. Take an example of a manufacturing industry, and discuss economic, technical and human factors' consideration in selection of a job for study.	<b>07</b>
<b>Q.2</b>	(a) Discuss importance of productivity measurement, and the role production engineers can play in it. Give example of machining industries.	<b>03</b>
	(b) Discuss Outline process chart and its usefulness in factoring the overall operations involved in process. Draw an OPC for drilling 5 mm hole in a blank.	<b>04</b>
	(c) What is a flow process chart? Classify flow process charts. Draw a material-type flow process chart for a job of first turning on a lathe and then drilling a 12 mm hole in this job. Show all symbols and imagine activity times and distance between machines/shops.	<b>07</b>
	<b>OR</b>	
	(c) What is a man-machine chart? Discuss main purposes of constructing a man-machine chart. Construct a man-machine chart wherein you can demonstrate that one person can look-after work on two machines. Take any imaginary example.	<b>07</b>
<b>Q.3</b>	(a) Write a brief note on construction of a SiMo chart.	<b>03</b>
	(b) Discuss principles of motion economy while designing a work place layout.	<b>04</b>
	(c) Discuss diagramming as a recording technique. Discuss construction of a string diagram for a waiter at a popular pizza joint.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Define and describe key Objectives of work measurement.	<b>03</b>
	(b) Write a brief note on Therbligs and PMTS.	<b>04</b>
	(c) Construct a time study observation sheet for 5 cycles of operation of drilling a 5 mm hole in a blank (assume the time), with following activities: <ul style="list-style-type: none"> <li>• Loading the blank</li> <li>• Locating the work piece under the drill</li> <li>• Drilling</li> <li>• Unloading</li> <li>• Deburring</li> </ul>	<b>07</b>

How can this be further taken up in determining the standard time for the drilling operation?

- Q.4** (a) Define ergonomics and enlist its principles. **03**  
(b) Discuss effect of environment on performance of worker, with suitable illustration. **04**  
(c) Write a brief note on Performance Rating, Wage Payment & Incentive Plans. Justify why a notion of 'standard worker' is followed while determining standard time. **07**

**OR**

- Q.4** (a) Write a brief note on work sampling. **03**  
(b) Describe ergonomics in light of designing a Man-machine system interface. Take an example of ergonomic design for furniture for data entry operators. **04**  
(c) Discuss importance of understanding human behavior while designing equipment. Take an example of medical instrumentation and gadgets. **07**
- Q.5** (a) Define and enlist advantages of BPR. **03**  
(b) Discuss situations that fails BPR exercise. Take any suitable example. **04**  
(c) Discuss implementation methodology of BPR. Take a suitable example. **07**

**OR**

- Q.5** (a) Discuss why it is considered crucial to know as to 'when to reengineer'. **03**  
(b) Write a brief note on productivity scenario in public sector enterprises, and the changes that have come in recent years **04**  
(c) Discuss activities carried out by National Productivity Council, in advocating and counseling productivity improvement. **07**

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